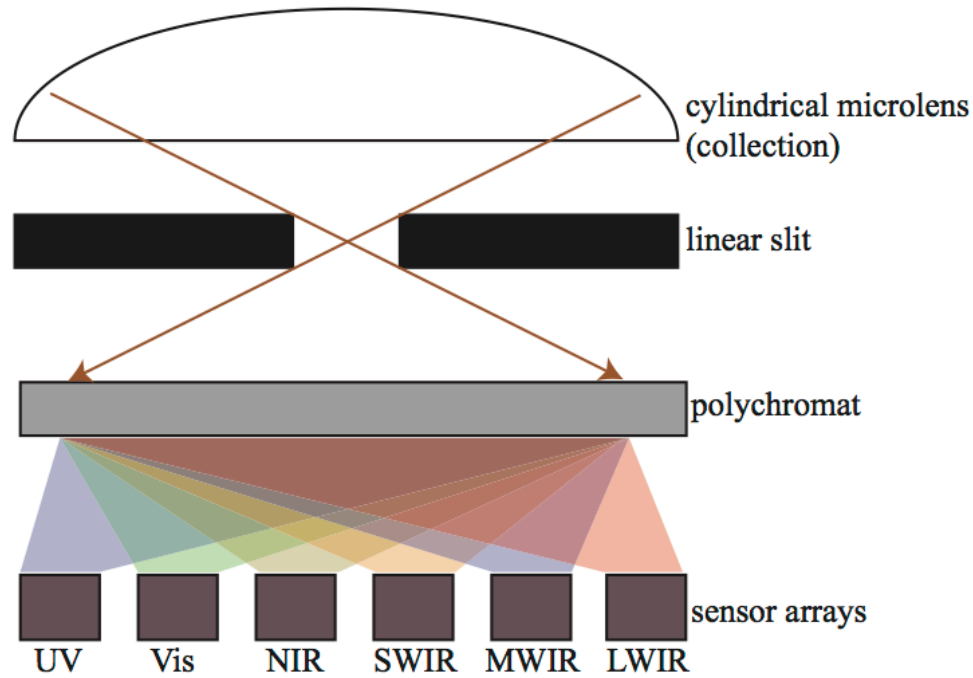


Title: A lightweight compact multi-spectral imager using novel computer-generated micro-optics and spectral-extraction algorithms

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Approach:

- New architecture for a hyper-spectral imaging system.
- New diffractive-optic (polychromat) for very efficient & flexible dispersion.
- New algorithms for extraction of hyper-spectral images that can be performed on chip without transmitting data to earth.

Research Objectives

- To detect & characterize near-earth objects (NEOs).
- Using a novel hyper-spectral imaging system & novel spectrum-extraction algorithms.
- Our system will be lighter, smaller, and less expensive than state-of-the-art. Furthermore, it will enable new functionalities in ultra-broadband imaging.
- Start TRL is 1 (principles simulated & measured). End TRL is 3 (proof-of-concept system).

Potential Impact:

- High spatial, spectral & temporal resolution in UV, Vis, IR bands.
- Can be applied for imaging a wide range of astronomical objects including NEOs.
- Other commercial (non-space) applications of inexpensive hyper-spectral imagers in medicine, food technologies, environmental monitoring, etc.